

The relationship between labour force satisfaction, wages and retention within the United Kingdom's National Health Service: a systematic review of the literature

Appendices: Supporting Information

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Appendix 1: Terms used in searches and rationale

Three main components: retention, wages and satisfaction

Words synonymous with the above components were used in search terms, the table below details words and terms thought to be synonymous with the components.

Table A3. Synonyms of satisfaction, wages and retention to be used in searches

Satisfaction	Wages	Retention	Profession
Job Satisfaction/ Satisf*	"Salaries and Fringe Benefits"/ Wages	Retention Kept	Nurs* Nursing Staff, Hospital/ Pharmac*
Content*	Salar*	Held	Cleaner
Fulfil*	Money	Maintain	Administrative Personnel/ Medical Receptionists/ Nurses' Aides/ Health Care Assistant Support Worker
Happ*	Incom*	Intent to stay	
Gratif*	Earnings	Remain	
motivat*	Remunerat* Money received "Salaries and Fringe Benefits"/	Stay* Retain* Keep	Porter Medical Secretaries/ Occupational Therap* Physiotherap* Speech Therap* Midwifery/

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Radiographer
Nutritionists/
Biomedical
Scientists
Dentists/
Clinical scientist
Sonographer
Physicians/
Doctor
Family Practice/
GP
Consultant
General
Practitioners/

Final search strategy:

Key/Summary
NHS: 1 or 2

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Profession: 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29

Satisfaction: 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38

Wages: 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46

Retention: 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55

NHS+Profession+Satisfaction: 56 and 57 and 58

NHS+Profession+Wages: 56 and 57 and 59

NHS+Profession+Retention: 56 and 57 and 60

NHS+Profession+Satisfaction+Wages: 56 and 57 and 58 and 59

NHS+Profession+Satisfaction+Retention: 56 and 57 and 58 and 60

NHS+Profession+Wages+Retention: 56 and 57 and 59 and 60

NHS+Profession+Wages+Retention+Satisfaction:

56 and 57 and 58 and 59 and 60

Comprehensive list of search terms and the strategy used:

1. NHS
2. National Health Service
-
3. Nurs*
4. Nursing Staff, Hospital/
5. Pharmac*
6. Cleaner
7. Administrative Personnel/
8. Medical Receptionists/
9. Nurses' Aides/
10. Health Care Assistant
11. Support Worker
12. Porter
13. Medical Secretaries/
14. Occupational Therap*
15. Physiotherap*
16. Speech Therap*

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17. Midwifery/
 18. Radiographer
 19. Nutritionists/
 20. Biomedical Scientists
 21. Dentists/
 22. Clinical scientist
 23. Sonographer
 24. Physicians/
 25. Doctor
 26. Family Practice/
 27. GP
 28. Consultant
 29. General Practitioners/
-

30. Job Satisfaction/
 31. Satisf*
 32. Content*
 33. Fulfil*
 34. Happ*
 35. Gratif*
 36. motivat*
 37. morale
 38. Welbeing
-

39. "Salaries and Fringe Benefits"/
 40. Wages
 41. Salar*
 42. Money
 43. Incom*
 44. Earnings
 45. Remunerat*
 46. Money received
-

47. Retention

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- 48. Kept
 - 49. Held
 - 50. Maintain
 - 51. Intent to stay
 - 52. Remain
 - 53. Stay*
 - 54. Retain*
 - 55. Keep
-

- 56. 1 or 2
 - 57. 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29
 - 58. 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38
 - 59. 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46
 - 60. 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55
-

- 61. 56 and 57 and 58
- 62. 56 and 57 and 59
- 63. 56 and 57 and 60
- 64. 56 and 57 and 58 and 59
- 65. 56 and 57 and 58 and 60
- 66. 56 and 57 and 59 and 60
- 67. 56 and 57 and 58 and 59 and 60

NHS: 1-2

Profession: 3-29

Satisfaction: 30-38

Wages: 39-46

Retention: 47-55

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Appendix 2: Data extraction form

Table A1. Data extraction form

Author and Time of study	Country, Setting and Profession	Design/Methods	Aims	Findings	Recommendations
Newman et al. (2002)	UK Nurses	Findings of Qualitative study Based on >130 interviews	To present empirical evidence of the main factors influencing nurse satisfaction and retention and empirical support for a conceptual framework.	NHS and trust environment, satisfaction, retention, patient satisfaction, service capability and service quality all sequentially linked	Holistic approach needed
Appleton et al. (1998)	UK General Practitioners (GPs)	Qualitative Postal questionnaire	To determine levels of psychological symptoms, job satisfaction, and subjective ill health in GPs and their relationship to practice characteristics, and to compare levels of job satisfaction since the introduction of the 1990 GP contract with those found before 1990.	low job satisfaction amongst GPs significant problems in the physical and mental well-being of GPs. Majority of GPs felt that work affected physical health	
Coombs et al. (2010)	UK Allied Health Professionals (AHPs)	Qualitative Postal survey	To identify what influences allied health professionals' (AHPs) intention to work for the NHS.	Factors that influence intended behaviour to work for the NHS: Intention to work for NHS Professional development Media coverage numerous factors affect Moral obligation	Influencing public perceptions Emphasizing Professional development opportunities
Drennan et al. (2006)	UK Nurses (primary care)	Report on Department of Health project (systematic search, workshops, seminars)	To identify strategies and exemplars to assist Primary Care Trusts (PCTs) and the Workforce Development Confederations (WDCs) in Strategic Health	Did not find a lot of literature relating to the retention of nurses in primary care Geographical variation with regards to how	PCT, WDC and Department of health should address gap in detailed analysis' and

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				Authorities in attracting and retaining nurses to primary care at registered nurse level	effective some retention factors are	strategic planning
Hutton et al. (2014)	UK Radiographers	Quantitative survey (Utilised satisfaction survey)	job	To support the development of methods to improve job satisfaction and effectiveness through gain understanding of the work experiences of radiotherapy professionals	Workers are prone to burnout. Workload can affect job satisfaction and should thus be paid attention to. Professional development can enhance satisfaction.	Using professional development as a means to improve job satisfaction
Harris et al (2008)	UK Dentists	Qualitative Survey		To compare global job satisfaction, and to compare facets of job satisfaction for practitioners working in the different organisational settings	Organisational settings - affect the job satisfaction of dentists Autonomy, development and the ability to provide quality care affect satisfaction	
Sibbald et al. (2000)	UK General Practitioners	Postal surveys		To investigate changes in the Job satisfaction of GPs from 1987-1998	Autonomy, pay and workload affect GP job satisfaction	
Shields and Ward (2001)	Netherlands Nurses	Quantitative (data drawn from 1994 national survey of NHS nursing staff) Review of literature		To investigate the determinants of job satisfaction for nurses and identify the relationship between job satisfaction and nurses' intentions to leave the NHS	Low job satisfaction is concentrated in newly qualified (young) nursing staff. Perceptions of low pay compared to other public sector works result in low job satisfaction. Work environment, encouragement of professional development and pay affect satisfaction. Pay could improve nurse retention	
Frijters et al. (2006)	England Nurses	Quantitative Utilised longitudinal	a	Investigation into the quitting behaviour of NHS nurses (through the use of	Nurse retention may not be eliminated through increased pay	

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		survey (quarterly labour force survey)	a longitudinal survey)		
Simoens et al. (2002)	Scotland GPs	Review literature	of	To explain why Scottish GPs are happier with their job and more likely to stay than English GPs	Age, workload, work conflict, out of hours work, and increased demands affects job satisfaction Creating more flexible working hours, Establishing more realistic expectations of the role by patients
Andrews (2003)	England Nurses	Qualitative Combined questionnaire and semi-structured interview		To investigate the experiences and motivations of nurses who practice complementary medicine in the private sector and if those have left the NHS would return	Nurses left due to not having enough autonomy, nursing injuries and disillusion with the job and the NHS
Callaghan (2003)	England Nurses	Qualitative Interviews		To explore nursing morale and to identify the factors that nurses felt influenced it in order to ascertain the factors that affect nurse retention	Nurses have poor morale nurse education and increased health service resources might improve morale disillusionment goes further than pay woes
Hann et al. (2011)	England Family physicians	Secondary data analysis (national survey of family physicians working in the National Health Service (NHS) of England in 2001)		To explore the relationships between job satisfaction, leaving intentions and actually leaving	satisfied physicians stayed longer and were more likely to return if they left. Workloads, flexible hours, NHS reforms and the erosion of autonomy were reasons that were commonly cited by those who left the NHS
Drennan et al. (2016)	England Nurses	Qualitative Semi-structured interviews (thematically analysed)		To investigate the views of senior nurse and human resources managers of methods to retain hospital nurses (in a metropolitan	Work environments affect retention. Pay could potentially help retention problems. Poor management has a Strategies should be tailored to specific segments in

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				area)	significant effect on the nursing intentions to leave workforce
Storey et al. (05/05/2009)	England Nurses		Qualitative Postal questionnaire	To examine issues associated with the impact of age on the retention of NHS nurses in England	Pension considerations, enhanced pay and reducing working hours close to retirement were identified
Robinson et al (2005)	Australia Mental health nurses	health	Qualitative Semi structured interviews Questionnaire	To identify relationships between factors (career plans, career experiences and pathways)	Improving retention in mental health nursing is essential for meeting new national standards for service delivery. pay in relation to level of responsibility was the most cited reason for leaving.
Storey et al. (29/05/2009)	England Nurses		Literature review Database analysis	a study conducted to explore strategies for retaining nurses and their implications for the primary and community care nursing workforce.	Wages, flexibility and injuries affect retention according to the literature surveyed. There is not a lot of literature in relation to the factors influencing retention of older primary and community care nurses. Different factors affect nurses of different ages.
Loan-Clarke et al. (2010)	United Kingdom AHP		Qualitative Questionnaire longitudinal	To identify reasons for staying in and out of the NHS	Pension has a greater effect on 'stayers' in the NHS but pay was the prime economic focus for non-NHS AHPs
Carter and Tourangeau (2012)	England Nurses		Quantitative	The aim of the study was to test, quantitatively, the principles of the Tourangeau et al. (2010) model of determinants of nurses' intentions to remain employed by using data collected from a	An inability to provide quality care affects satisfaction. Physical and psychological responses to work would be associated with nurses' intentions to remain

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				sample of nursing staff in England	employed
Tovey and Adams (1999)	England Nurses	Qualitative and Quantitative	to identify the major sources of nurses' job satisfaction and dissatisfaction in acute hospital wards in the early 1990s, and to assess whether or not nurses' job satisfaction changes over time	nurses are not a homogenous group with regard to job satisfaction	
Newman et al. (2001)	UK Nurses	Mixed	To examine nurse retention	nurse retention is a complex issue	
Purvis and Cropley (2003)	UK Nurses	Quantitative	To understand the psychological contract model	To understand the expectations of NHS nurses in A psychological contract exists amongst NHS nurses	
Barron et al. 2007	England Nurses	Qualitative Cross-sectional postal survey	To investigate whether affective and relational components of nurses' experience of work have a significant impact on their intentions to leave either the job or the nursing profession in models that control for other factors (sociodemographic, work conditions, perceptions of quality of care) that are known to affect career decisions.	Pay, Satisfaction, workload, abuse, environment, managers and autonomy all affect retention	
Sibbald et al. 2003	England GPs	Qualitative Survey	To measure general practitioners' intentions to quit direct patient care, to assess changes over time and to investigate associated factors e.g. job satisfaction	Increased intentions to quit. Decreased satisfaction. Higher job satisfaction and having kids results in decreased likelihood of quitting. Dissatisfaction mirrors	Improve satisfaction. Intention to quit may not actually result in quitting. Improving satisfaction

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				wider discontent with doctors changing role within society	may increase numbers of GPs and improve their working lives.
Adams and Bond 2000	UK	Qualitative Survey Ward Organizational Features Scales (WOFS)	the importance of organizational features of acute hospital wards as predictors of nurses' job satisfaction, over and above the importance of individual nurse characteristic	Autonomy, Recognition, interpersonal relationships affect satisfaction Sufficient mix of appropriate staff to cover workload, personal development, good working relationships can be used to predict satisfaction relationship between grade and job satisfaction was weak.	reating conditions that facilitate intra-professional teamwork to improve satisfaction.
Gould and Fonenla 2006	UK	Survey Telephone	Describe the type of initiatives undertaken by senior nurses responsible for recruitment and retention.	Retention has be learnt about through asking employees why they are quitting. Job satisfaction influenced by managers Flexibility has a role in retention and satisfaction particularly for shift workers	
Joshua-Amadi 2002	UK Nurses	Qualitative Survey	Discover why registered nurses leave the NHS as well as to make appropriate recommendations to reduce poor retention	The below have a role in poor retention poor communication poor management inappropriate remuneration poor quality of care due to lack of planning, work overload and	The NHS should look into: Leadership equitable pay job redesign - autonomy valuing staff flexibility

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				interruptions poor work environment (conflict) lack of a voice from professional body	sharing best practice Motivation
Foster 2017	UK Nurses	Qualitative Review	Identify solutions to retention crisis	valued opportunity to provide feedback positive environment	Use literature to devise a retention strategy
Ikenwilo and Scott 2007	UK Consultants	Quantitative	Evaluate change in consultant labour supply as a result of changes to pay	creasing job satisfaction may improve retention but will also reduce the hours worked of consultants	
Gray et al. (2018)	UK Nurses	Qualitative (survey) (400 questionnaires distributed, 127 responses)	Offers guidance on analysing, managing and addressing, dissatisfied nurses.	Respondents were largely satisfied with team working, CPD and autonomy. large minority of respondents were dissatisfied with their ability to carry out duties as they see fit.	nurse managers should work closely with higher education institutions and other professional institutions to ensure that there is apt CPD.
Lambert et al.	UK Doctors (three years after graduating)	Questionnaire , 5291 responses, qualitative	Report why recent medicine graduates consider leaving medicine or the UK.	Almost two thirds (n=3145 (60.3%) of respondents were not definitely intent on staying in UK medicine and one of the top reasons identified was 'UK pay and conditions' (doctors increasingly cited it as a reason.	Implementing policy changes resulting in improvements to resources, staffing and working conditions.

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Appendix 3: Reasons for exclusion of full texts

Table A2. details the reasons for exclusions of articles at the full text stage

Reason for exclusion	
Did not provide an apt level of insight into how retention is affected by wages/satisfaction - A	9
Did not provide an apt level insight into how satisfaction is affected by wages and how it affects retention – B	9
Did not provide enough insight into the relationship between satisfaction , wages and retention – C	13
Did not focus on the relationship between job satisfaction, retention and wages of NHS staff specifically -D	14
Total	45

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Appendix 4 CASP tool responses.

CASP: The CASP tool can be accessed via this link: <http://www.casp-uk.net/casp-tools-checklists>

Author and date	Clear Statement	Appropriateness of qualitative method	Appropriate Design	APT Recruitment	Apt Data collection	Consideration of relationship between research and participants	Ethical issues	Clear statement of findings	Rigor of data analysis	Valuable ?
1. Newman et al. (2002)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
2. Appleton et al. (1998)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
3. Coombs et al (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
4. Drennan et al. (2006)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
5. Harris et al (2008)	Y	Y	Y	Y	CT	Y	CT	Y	Y	V
6. Hutton et al. (2014)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
7. Sibbald et al. (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
8. Frijters et al. a. (2006)	Y	Y	Y	Y	Y	CT	CT	Y	Y	Y
9. Simoens et al. (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
10. Andrews (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
11. Callaghan (2003)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
12. Hann et al. (2011)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
13. Drennan et al. (2016)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
14. Storey et al. (29/05/2009)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
15. Robinson et al (2005)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
16. Storey et al. (05/05/2009)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V

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17. Loan-Clarke et al. (2010)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
18. Tovey and Adams (1999)	Y	Y	Y	Y	Y	CT	CT	CT	Y	V
19. Carter and Tourangeau (2012)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
20. Newman et al. (2001)	Y	Y	Y	Y	Y	CT	CT	Y	Y	V
21. Barron et al. (2007)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
22. Purvis and Cropley (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
23. Sibbald et al. (2003)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
24. Shields and Ward (2001)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V
25. Adams and Bond (2000)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
26. Gould and Fontenla (2006)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
27. Joshua-Amadi (2002)	Y	Y	Y	Y	Y	Y	CT	Y	Y	V
28. Foster (2017)	Y	Y	Y	N	N	NA	CT	Y	N	V
29. Ikenwilo and Scott (2007)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
30. Gray et al. (2018)	Y	Y	Y	Y	Y	Y	Y	Y	Y	V
31. Lambert et al. (2018)	Y	Y	Y	Y	Y	CT	Y	Y	Y	V

Y= Yes

CT = Cannot tell

N=No

NA= Not applicable

V=Very

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SPS and RDS conceived this review. KB and AK conducted the literature search and extracted the data. KB led the writing of this manuscript, with all other co-authors (SPS, RDS, CT, and AK) commenting on subsequent drafts. All authors gave their approval for the final version to be published.

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No Patient and Public involvement:

This research was done without patient and public involvement. Patients were not invited to contribute to the writing or editing of this nor were they invited to comment on the study design.